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Terms	Documents
L3 and luciferase	12

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<i>DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ</i>			
<u>L4</u>	L3 and luciferase	12	<u>L4</u>
<u>L3</u>	lux with positive	151	<u>L3</u>
<u>L2</u>	L1 and positive	402	<u>L2</u>
<u>L1</u>	lux and luciferase	497	<u>L1</u>

END OF SEARCH HISTORY

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
15 March 2001 (15.03.2001)

PCT

(10) International Publication Number
WO 01/18195 A2

(51) International Patent Classification⁷: C12N 15/00

(21) International Application Number: PCT/US00/24699

(22) International Filing Date:
7 September 2000 (07.09.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/152,904 8 September 1999 (08.09.1999) US

(71) Applicant: XENOGEN CORPORATION [US/US]; 860
Atlantic Avenue, Alameda, CA 94501 (US).

(72) Inventors: FRANCIS, Kevin, P.; 3521 Oleander,
Alameda, CA 94502 (US). CONTAG, Pamela, R.; 6110
Bollinger Road, San Jose, CA 95129 (US). JOH, Danny,
J.; Apartment K108, 2000 Walnut Avenue, Fremont, CA
94538 (US).

(74) Agents: SHOLTZ, Charles, K.; Xenogen Corporation,
860 Atlantic Avenue, Alameda, CA 94501 et al. (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ,
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,
TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG,
CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— Without international search report and to be republished
upon receipt of that report.

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

WO 01/18195 A2

(54) Title: LUCIFERASE EXPRESSION CASSETTES AND METHODS OF USE

(57) Abstract: The present invention relates to bacterial luciferase expression cassettes suitable for conferring bioluminescence properties on Gram-positive bacteria, cells transformed with such cassettes, and methods of making and using such cassettes.

WEST[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 10 of 12 returned.**☐ 1. Document ID: US 20030119732 A1

L4: Entry 1 of 12

File: PGPB

Jun 26, 2003

PGPUB-DOCUMENT-NUMBER: 20030119732
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030119732 A1

TITLE: CDDO-compounds and combination therapies thereof

PUBLICATION-DATE: June 26, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Konopleva, Marina	Houston	TX	US	
Andreeff, Michael	Houston	TX	US	
Sporn, Michael B.	Tunbridge	VT	US	

US-CL-CURRENT: 514/12[Full](#) [File](#) [Class](#) [Front](#) [Pages](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachment](#)[First](#) [Page](#) [Last](#) [Page](#)☐ 2. Document ID: US 20030044802 A1

L4: Entry 2 of 12

File: PGPB

Mar 6, 2003

PGPUB-DOCUMENT-NUMBER: 20030044802
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030044802 A1

TITLE: Cellular transcriptional logic devices

PUBLICATION-DATE: March 6, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Saylor, Gary S.	Blaine	TN	US	
Fleming, James T.	Knoxville	TN	US	
Applegate, Bruce	West Lafayette	TN	US	
Simpson, Michael L.	Knoxville	TN	US	

US-CL-CURRENT: 435/6; 435/287.2, 702/20[Full](#) [File](#) [Class](#) [Front](#) [Pages](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachment](#)[First](#) [Page](#) [Last](#) [Page](#)☐ 3. Document ID: US 20030027241 A1

L4: Entry 3 of 12

File: PGPB

Feb 6, 2003

PGPUB-DOCUMENT-NUMBER: 20030027241
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030027241 A1

TITLE: BIOLUMINESCENT BIOSENSOR DEVICE

PUBLICATION-DATE: February 6, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Sayler, Gary S.	Blaine	TN	US	
Ripp, Steven A.	Knoxville	TN	US	
Applegate, Bruce M.	West Lafayette	IN	US	

US-CL-CURRENT: 435/29; 356/246, 422/50, 422/55, 422/58, 435/235.1, 435/320.1,
435/34, 435/832, 435/842, 435/848, 435/863 , 435/873, 435/879, 435/882, 435/885,
435/909, 436/535, 536/23.7

Full	Title	Abstract	Full	Examiner	Classification	Date	Reference	Sequence	Attachment
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View	Page	Print	Index
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 4. Document ID: US 20020192755 A1

L4: Entry 4 of 12

File: PGPB

Dec 19, 2002

PGPUB-DOCUMENT-NUMBER: 20020192755
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020192755 A1

TITLE: Methods of screening for introduction of DNA into a target cell

PUBLICATION-DATE: December 19, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Francis, Kevin P.	Alameda	CA	US	
Doyle, Timothy C.	Alameda	CA	US	
Nawotka, Kevin A.	Alameda	CA	US	

US-CL-CURRENT: 435/69.1; 435/252.3, 435/476

Full	Title	Abstract	Full	Examiner	Classification	Date	Reference	Sequence	Attachment
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View	Page	Print	Index
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 5. Document ID: US 20020137215 A1

L4: Entry 5 of 12

File: PGPB

Sep 26, 2002

PGPUB-DOCUMENT-NUMBER: 20020137215
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020137215 A1

TITLE: Compositions and methods for use thereof in modifying the genomes of microorganisms

PUBLICATION-DATE: September 26, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Francis, Kevin P.	Alameda	CA	US	
Purchio, Anthony F.	Alameda	CA	US	

US-CL-CURRENT: 435/473; 435/320.1

Full	Title	Class	Pub	Rev	Classification	Date	Reference	Sequences	Attachments
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Full	Title	Date	Image
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 6. Document ID: US 20020025514 A1

L4: Entry 6 of 12

File: PGPB

Feb 28, 2002

PGPUB-DOCUMENT-NUMBER: 20020025514
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020025514 A1

TITLE: High throughput assay

PUBLICATION-DATE: February 28, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Jaworski, Deborah D.	Collegeville	PA	US	
Murray, Monique F.	King of Prussia	PA	US	

US-CL-CURRENT: 435/5; 435/345, 435/7.2, 435/7.22

Full	Title	Class	Pub	Rev	Classification	Date	Reference	Sequences	Attachments
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Full	Title	Date	Image
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 7. Document ID: US 6544729 B2

L4: Entry 7 of 12

File: USPT

Apr 8, 2003

US-PAT-NO: 6544729
DOCUMENT-IDENTIFIER: US 6544729 B2

TITLE: Bioluminescent biosensor device

Full	Title	Class	Pub	Rev	Classification	Date	Reference	Sequences	Attachments
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Full	Title	Date	Image
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 8. Document ID: US 6117643 A

L4: Entry 8 of 12

File: USPT

Sep 12, 2000

US-PAT-NO: 6117643
DOCUMENT-IDENTIFIER: US 6117643 A
**** See image for Certificate of Correction ****

TITLE: Bioluminescent bioreporter integrated circuit

Full	Title	Class	Pub	Rev	Classification	Date	Reference	Sequences	Attachments
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Full	Title	Date	Image
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 9. Document ID: US 5538892 A

L4: Entry 9 of 12

File: USPT

Jul 23, 1996

US-PAT-NO: 5538892

DOCUMENT-IDENTIFIER: US 5538892 A

TITLE: Nucleic acids encoding a TGF-.beta. type 1 receptor

Full	Title	Abstract	Front	Review	Information	Date	Keywords	Sequence	Attachment
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Full	Title	Front	Image
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 10. Document ID: US 5221623 A

L4: Entry 10 of 12

File: USPT

Jun 22, 1993

US-PAT-NO: 5221623

DOCUMENT-IDENTIFIER: US 5221623 A

TITLE: Use of bacterial luciferase structural genes for cloning and monitoring gene expression in microorganisms and for tagging and identification of genetically engineered organisms

Full	Title	Abstract	Front	Review	Information	Date	Keywords	Sequence	Attachment
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Full	Title	Front	Image
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L4: Entry 11 of 12

File: USPT

Mar 23, 1993

US-PAT-NO: 5196318

DOCUMENT-IDENTIFIER: US 5196318 A

**** See image for Certificate of Correction ****

TITLE: Precisely regulated expression of deleterious genes

Full	Title	Abstract	Front	Reclaim	Classification	Date	Reference	Sequence	Attachment
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Full	Title	Abstract	Image
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☐ 12. Document ID: JP 2003509029 W WO 200118195 A2 AU 200071266 A EP 1212429 A2

L4: Entry 12 of 12

File: DWPI

Mar 11, 2003

DERWENT-ACC-NO: 2001-226744

DERWENT-WEEK: 200319

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TITLE: Luciferase expression cassettes for conferring bioluminescence on gram-positive bacteria, has polynucleotide encoding luciferase gene products and gram-positive Shine-Dalgarno sequences upstream of polynucleotide

Full	Title	Abstract	Front	Reclaim	Classification	Date	Reference	Sequence	Attachment
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Full	Title	Abstract	Image
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L3 and luciferase

12

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August 1, 2003
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NEWS 8 AUG 18 FROSTI and KOSMET enhanced with Simultaneous Left and Right
Truncation
NEWS 9 AUG 18 Simultaneous left and right truncation added to ANABSTR
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NEWS 11 SEP 25 INPADOC: Legal Status data to be reloaded
NEWS 12 SEP 29 DISSABS now available on STN
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NEWS 14 OCT 21 BIOSIS file reloaded and enhanced

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=> s lux (10a) positive
L1 117 LUX (10A) POSITIVE

=> s l1 and luciferase
L2 36 L1 AND LUCIFERASE

=> dup rem
ENTER L# LIST OR (END):12
PROCESSING COMPLETED FOR L2
L3 12 DUP REM L2 (24 DUPLICATES REMOVED)

=> d 1-12

L3 ANSWER 1 OF 12 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2002:90237 HCAPLUS
DN 136:129939
TI Transposable **luciferase** expression cassettes for Gram positive
bacteria and their use to monitor bacterial infections by in situ
bioluminescence
IN Francis, Kevin P.; Purchio, Anthony F.
PA Xenogen Corporation, USA
SO PCT Int. Appl., 114 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002008431	A1	20020131	WO 2001-US7324	20010307
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
	US 2002137215	A1	20020926	US 2001-888049	20010621

PRAI US 2000-216257P P 20000706
US 2001-274105P P 20010307
RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 12 HCAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 1
AN 2001:185908 HCAPLUS
DN 134:232671
TI **Luciferase** expression cassettes for Gram-positive bacteria and
their use in monitoring bacterial infection using in situ bioluminescence
IN Francis, Kevin P.; Contag, Pamela R.; Joh, Danny J.
PA Xenogen Corporation, USA
SO PCT Int. Appl., 73 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001018195	A2	20010315	WO 2000-US24699	20000907
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
	EP 1212429	A2	20020612	EP 2000-960044	20000907
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL			
	JP 2003509029	T2	20030311	JP 2001-522406	20000907
PRAI	US 1999-152904P	P	19990908		
	WO 2000-US24699	W	20000907		

L3 ANSWER 3 OF 12 MEDLINE on STN DUPLICATE 2
AN 2001086882 MEDLINE
DN 20566707 PubMed ID: 11114940
TI Amino acid residues in LuxR critical for its mechanism of transcriptional activation during quorum sensing in *Vibrio fischeri*.
AU Trott A E; Stevens A M
CS Department of Biology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061, USA.
SO JOURNAL OF BACTERIOLOGY, (2001 Jan) 183 (1) 387-92.
Journal code: 2985120R. ISSN: 0021-9193.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200101
ED Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20010118

L3 ANSWER 4 OF 12 SCISEARCH COPYRIGHT 2003 THOMSON ISI on STN
AN 2000:397363 SCISEARCH
GA The Genuine Article (R) Number: 316LF
TI Monitoring bioluminescent *Staphylococcus aureus* infections in living mice using a novel luxABCDE construct
AU Francis K P; Joh D; BellingerKawahara C; Hawkinson M J; Purchio T F; Contag P R (Reprint)
CS XENOGEN CORP, 860 ATLANTIC AVE, ALAMEDA, CA 94501 (Reprint); XENOGEN CORP, ALAMEDA, CA 94501; STANFORD UNIV, MED CTR, DEPT PEDIAT, DIV NEONATOL & DEV MED, STANFORD, CA 94305
CYA USA
SO INFECTION AND IMMUNITY, (JUN 2000) Vol. 68, No. 6, pp. 3594-3600.
Publisher: AMER SOC MICROBIOLOGY, 1752 N ST NW, WASHINGTON, DC 20036-2904.

ISSN: 0019-9567.
DT Article; Journal
FS LIFE
LA English
REC Reference Count: 19
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L3 ANSWER 5 OF 12 MEDLINE on STN DUPLICATE 3
AN 97394920 MEDLINE
DN 97394920 PubMed ID: 9251182
TI Evaluation of **luciferase** reporter bacteriophage A511::luxAB for
detection of *Listeria monocytogenes* in contaminated foods.
AU Loessner M J; Rudolf M; Scherer S
CS Institut fur Mikrobiologie, Technische Universitat Munchen,
Freising-Weihenstephan, Germany.. M.J.Loessner@lrz.tu-muenchen.de
SO APPLIED AND ENVIRONMENTAL MICROBIOLOGY, (1997 Aug) 63 (8) 2961-5.
Journal code: 7605801. ISSN: 0099-2240.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199709
ED Entered STN: 19970926
Last Updated on STN: 19970926
Entered Medline: 19970918

L3 ANSWER 6 OF 12 SCISEARCH COPYRIGHT 2003 THOMSON ISI on STN
AN 95:135650 SCISEARCH
GA The Genuine Article (R) Number: QG250
TI DETECTION AND QUANTIFICATION OF VIBRIO-FISCHERI AUTOINDUCER FROM SYMBIOTIC
SQUID LIGHT ORGANS
AU BOETTCHER K J; RUBY E G (Reprint)
CS UNIV SO CALIF, DEPT BIOL SCI, LOS ANGELES, CA, 90089 (Reprint); UNIV SO
CALIF, DEPT BIOL SCI, LOS ANGELES, CA, 90089
CYA USA
SO JOURNAL OF BACTERIOLOGY, (FEB 1995) Vol. 177, No. 4, pp. 1053-1058.
ISSN: 0021-9193.
DT Article; Journal
FS LIFE
LA ENGLISH
REC Reference Count: 46
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L3 ANSWER 7 OF 12 SCISEARCH COPYRIGHT 2003 THOMSON ISI on STN DUPLICATE 4
AN 96:45936 SCISEARCH
GA The Genuine Article (R) Number: TM498
TI HIGHLY BIOLUMINESCENT STREPTOCOCCUS-THERMOPHILUS STRAIN FOR THE DETECTION
OF DAIRY-RELEVANT ANTIBIOTICS IN MILK
AU JACOBS M F (Reprint); TYNKKYNNEN S; SIBAKOV M
CS NIDR, MICROBIAL ECOL LAB, BLDG 30, ROOM 313, BETHESDA, MD, 20892
(Reprint); UNIV MARYLAND, DEPT MICROBIOL, COLLEGE PK, MD, 20742; VALIO RES
& DEV CTR, SF-00370 HELSINKI, FINLAND
CYA USA; FINLAND
SO APPLIED MICROBIOLOGY AND BIOTECHNOLOGY, (DEC 1995) Vol. 44, No. 3-4, pp.
405-412.
ISSN: 0175-7598.
DT Article; Journal
FS LIFE; AGRI
LA ENGLISH
REC Reference Count: 35
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L3 ANSWER 8 OF 12 SCISEARCH COPYRIGHT 2003 THOMSON ISI on STN DUPLICATE 5
AN 94:626245 SCISEARCH
GA The Genuine Article (R) Number: PJ125
TI BIOLUMINESCENCE OF MYCTOPHID AND STOMIIFORM FISHES IS NOT DUE TO BACTERIAL
LUCIFERASE
AU HAYGOOD M G (Reprint); EDWARDS D B; MOWLDS G; ROSENBLATT R H

CS UNIV CALIF SAN DIEGO, SCRIPPS INST OCEANOGRAPHY, DIV MARINE BIOL RES, LA JOLLA, CA, 92093 (Reprint); UNIV CALIF SAN DIEGO, SCRIPPS INST OCEANOGRAPHY, CTR MARINE BIOMED & BIOTECHNOLOGY, LA JOLLA, CA, 92093
CYA USA
SO JOURNAL OF EXPERIMENTAL ZOOLOGY, (01 OCT 1994) Vol. 270, No. 2, pp. 225-231.
ISSN: 0022-104X.
DT Note; Journal
FS LIFE; AGRICULTURE
LA ENGLISH
REC Reference Count: 23
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L3 ANSWER 9 OF 12 BIOTECHNICAL ABSTRACTS COPYRIGHT 2003 THOMSON DERWENT/ISI on STN
AN 1993-02490 BIOTECHNICAL
TI The application of lux genes;
bacterium **luciferase** lux gene for use as a reporter gene; a review
AU Hill P J; Rees C E D; Winson M K; *Stewart G S A B
LO University of Nottingham, Faculty of Agricultural and Food Sciences, Department of Applied Biochemistry and Food Science, Sutton Bonington Campus, Loughborough, Leicestershire, LE12 5RD, UK.
SO Biotechnol.Appl.Biochem.; (1993) 17, 1, 3-14
CODEN: BABIEC
DT Journal
LA English

L3 ANSWER 10 OF 12 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 1993:19014 HCAPLUS
DN 118:19014
TI Formation of the LuxR protein in the Vibrio fischeri lux system is controlled by HtpR through the GroESL proteins
AU Adar, Y. Y.; Simaan, M.; Ulitzur, S.
CS Dep. Food. Eng. Biotechnol., Technion-Israel Inst. Technol., Haifa, 32000, Israel
SO Journal of Bacteriology (1992), 174(22), 7138-43
CODEN: JOBAAJ; ISSN: 0021-9193
DT Journal
LA English

L3 ANSWER 11 OF 12 MEDLINE on STN DUPLICATE 6
AN 90299789 MEDLINE
DN 90299789 PubMed ID: 2163384
TI Depressed light emission by symbiotic Vibrio fischeri of the sepiolid squid Euprymna scolopes.
AU Boettcher K J; Ruby E G
CS Department of Biological Sciences, University of Southern California, Los Angeles 90089-0371.
SO JOURNAL OF BACTERIOLOGY, (1990 Jul) 172 (7) 3701-6.
Journal code: 2985120R. ISSN: 0021-9193.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199008
ED Entered STN: 19900907
Last Updated on STN: 19900907
Entered Medline: 19900807

L3 ANSWER 12 OF 12 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1989:426389 BIOSIS
DN PREV198988084647; BA88:84647
TI IDENTIFICATION OF THE OPERATOR OF THE LUX REGULON FROM THE VIBRIO-FISCHERI STRAIN ATCC-7744.
AU DEVINE J H [Reprint author]; SHADEL G S; BALDWIN T O
CS DEP BIOCHEM AND BIOPHYSICS, TEX A AND M UNIV, COLLEGE STATION, TEX 77843, USA
SO Proceedings of the National Academy of Sciences of the United States of

America, (1989) Vol. 86, No. 15, pp. 5688-5692.

CODEN: PNASA6. ISSN: 0027-8424.

DT Article

FS BA

LA ENGLISH

OS GENBANK-M25751; GENBANK-M25752

ED Entered STN: 19 Sep 1989

Last Updated on STN: 23 Sep 1989

=> d 4, 9, 12 ab

L3 ANSWER 4 OF 12 SCISEARCH COPYRIGHT 2003 THOMSON ISI on STN

AB Strains of *Staphylococcus aureus* were transformed with plasmid DNA containing a *Photobacterium luminescens* lux operon (luxABCDE) that was genetically modified to be functional in both gram-**positive** and gram-negative bacteria. *S. aureus* cells containing this novel **lux** construct, downstream of an appropriate promoter sequence, are highly bioluminescent, allowing the detection of fewer than 100 CFU in vitro (direct detection of exponentially dividing cells in liquid culture). Furthermore, these bacteria produce light stably at 37 degrees C and do not require exogenous aldehyde substrate, thus allowing *S. aureus* infections in living animals to be monitored by bioluminescence. Two strains of *S. aureus* 8325-4 that produce high levels of constitutive bioluminescence were injected into the thigh muscles of mice, and the animals were then either treated with the antibiotic amoxicillin or left untreated. Bioluminescence from bacteria present in the thighs of the mice was monitored in vivo over a period of 24 h. The effectiveness of the antibiotic in the treated animals could be measured by a decrease in the light signal. At 8 h, the infection in both groups of treated animals had begun to clear, as judged by a decrease in bioluminescence, and by 24 h no light signal could be detected. In contrast, both groups of untreated mice had strong bioluminescent signals at 24 h. Quantification of CFU from bacteria extracted from the thigh muscles of the mice correlated well with the bioluminescence data. This paper shows for the first time that bioluminescence offers a method for monitoring *S. aureus* infections in vivo that is sensitive and noninvasive and requires fewer animals than conventional methodologies.

L3 ANSWER 9 OF 12 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT/ISI on STN

AB The use of bacterial lux genes encoding the bioluminescent (Lux+) phenotype have been used as reporters of gene expression. Naturally-occurring bioluminescent bacteria include *Vibrio fischeri*, *Vibrio harveyi*, *Photobacterium leiognathi*, *Photobacterium phosphoreum*, *Photobacterium mandapamensis*, *Kryptophanaron alfredi*, *Xanthomonas luminescens* and *Vibrio albensis*. The **Lux+** phenotype has been established in non-bioluminescent Gram-**positive** and Gram-negative bacteria by introducing the **lux** operon (or the **luciferase** (EC-1.14.14.3) luxA and luxB genes alone) into the bacterium using a plasmid or transposon vector. Short-chain aldehydes, e.g. nonanal, can be used to elicit a bioluminescent response from lux+ recombinant bacteria. The lux genes have been cloned by the polymerase chain reaction (PCR), and the high interspecies conservation of lux sequences has allowed the synthesis of universal PCR primers. The most thermotolerant **luciferase**, from *X. luminescens*, is stable in *Escherichia coli* at up to 42 deg. Luminometers or scintillation counters can be used to detect emitted light. (52 ref)

L3 ANSWER 12 OF 12 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN

AB *Escherichia coli* that carry a recombinant plasmid bearing the *Vibrio fischeri* lux regulon express luminescence that mimics the luminescence of *V. fischeri*. The lux regulon consists of two divergently transcribed operons, the rightward operon (luxICDABE genes) and the leftward operon (luxR gene). The luxR and luxI genes and the control region separating the two operons supply the primary regulatory control over the lux regulon; the regulatory mechanisms result in a dramatic increase in the rate of **luciferase** synthesis after induction, apparently due to a unique autoregulatory positive feedback mechanism, and in an enormous

difference (> 104) in levels of luminescence in cells before and after induction. The generally accepted model of primary regulation of bioluminescence in *V. fischeri* involves the interaction of the product of the luxR gene and N-(3-oxohexanoyl)homoserine lactone, the autoinducer produced by the enzyme encoded by luxI, the first gene of the rightward operon, with an operator sequence within the control region to stimulate transcription of the rightward operon in a positive feedback loop. We have used deletion mapping of a transcription reporter vector to determine the approximate location of the operator. By site-directed mutagenesis of the presumed operator, we have demonstrated that the 20-base-pair inverted repeat ACCTGTAGGA|TCGTACAGGT (where the vertical line is the center of symmetry), which bears striking similarity to the recognition sequence for the pleiotropic repressor protein LexA, is the operator of the lux regulon. We also found that deletion of sequences upstream of the palindrome leads to increased transcription from the rightward promoter (PR), indicative of a cis-acting element that represses transcription in the absence of the LuxR-autoinducer complex. Modifications of the palindrome that eliminate stimulation LuxR-autoinducer of transcription from PR have no effect on repression by the cis-acting mechanism(s), suggesting that the palindrome is not necessary for repression of the rightward operon. Thus, it appears that the large increase in transcription upon induction of the lux regulon is the result of at least two independent mechanisms, one positive and the other negative.

=> dis his

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FILE 'MEDLINE, SCISEARCH, LIFESCI, BIOTECHDS, BIOSIS, EMBASE, HCAPLUS, NTIS, ESBIODBASE, BIOTECHNO, WPIDS' ENTERED AT 18:59:31 ON 27 OCT 2003

L1 117 S LUX (10A) POSITIVE
 L2 36 S L1 AND LUCIFERASE
 L3 12 DUP REM L2 (24 DUPLICATES REMOVED)

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